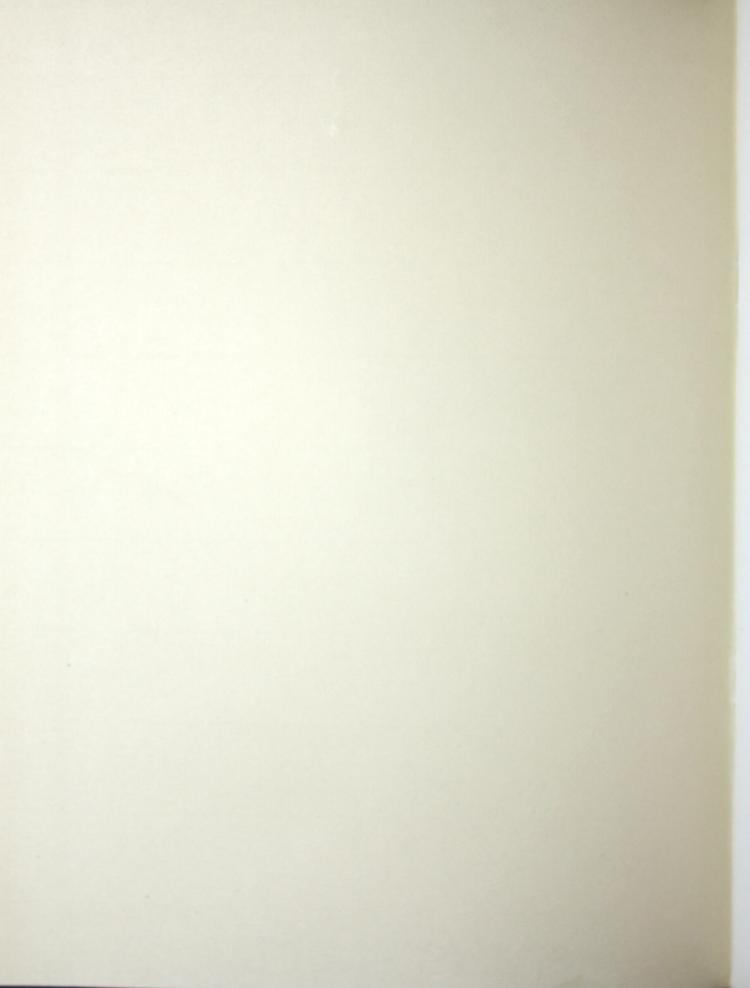


I A B OI I

BUILER TUBE

BUILER







# Our Ideal

AT the dawn of civilization man lit a fire. It cooked his food; it warmed his body; it protected him from preying animals in the night.

The force within that fire which separated man from savagery in the beginning, is the force which today maintains civilization in the most densely populated sections on the earth. That force is Heat—prime mover of life and greatest of all servants in the march of human progress.

Perfectly to control this force in its service to the heating needs of men, is the ideal of the American Radiator Company. We feel that there is no service of greater consequence to the individual, the family and the nation.

It is with this ideal ever in mind that our heating apparatus are designed and made. They are products of scientific research and long practical experience. We recommend them as representing, in their respective fields, the best values that can be obtained.

# IDEAL WATER TUBE BOILER



REG. U. S. PAT. OFF.

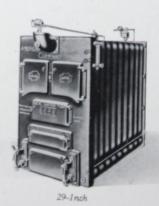
# AMERICAN RADIATOR COMPANY

Copyrighted 1925 American Radiator Company



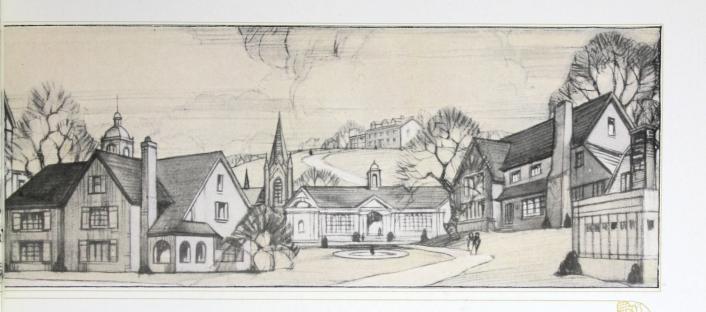
# Ideal Water Tube Boilers



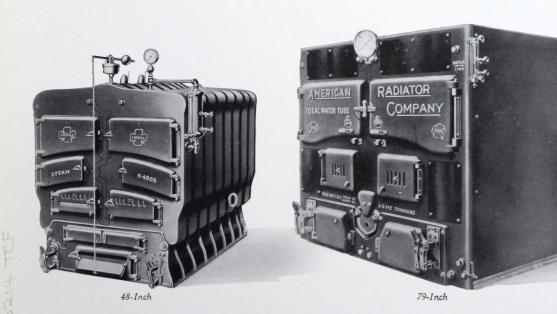




36-Inch



Designed to serve the heating needs of larger residences ~ apartment houses ~ hotels ~ churches ~ banks ~ clubs ~ stores ~ theatres ~ and public buildings & &





# 29" IDEAL WATER TUBE BOILER

IDEAL WATER TUBE BOILERS ARE SCIENTIFICALLY DESIGNED AND CONSTRUCTED TO RENDER EFFICIENT, DURABLE SERVICE WITH THE MINIMUM OF ATTENTION. NOTE THE STURDY, CLEAN-CUT APPEARANCE, ABSENCE OF OLD-FASHIONED, BOTHERSOME CHAINS, THE UNUSUALLY HEAVY DOORS, PLATE WORK AND HINGE PINS, AND FREEDOM FROM MANIFOLDS AND OUTSIDE PIPING

# THE IDEAL WATER TUBE BOILER IS A PERMANENT INVESTMENT

9

Of the entire equipment that goes into any house, there is no single item which means so much to the owner from the investment point of view as the heating boiler.

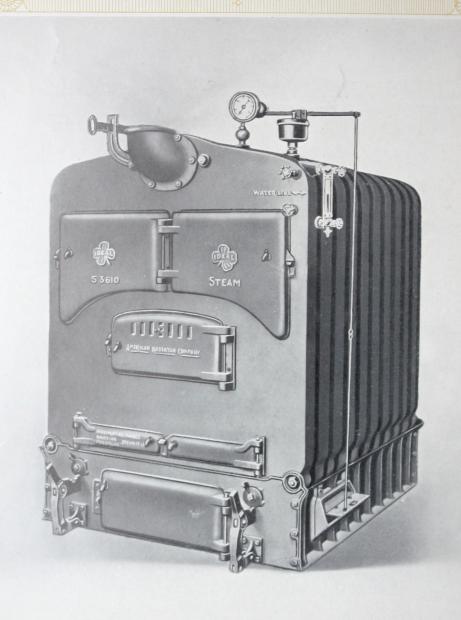
Here is an item, to secure the service of which necessarily involves a certain initial expenditure, and to operate which means yearly maintenance costs in the form of fuel and labor. In return, the boiler is expected to generate the heat to keep the building comfortably warm. The selection of a specific boiler then, becomes a question of balancing service against expenditure. Carefully selected, a boiler means money well invested; but a poorly selected plant becomes a source of endless regret.

The Ideal Water Tube Boiler is a sound, permanent investment. Very reasonable in its initial cost, it operates with unusual economy of coal consumption, and without requiring skilled attendance. It will serve efficiently throughout the lifetime of the building it occupies, and it may be relied upon always to produce quick heating responses to every need.

# Designed to Meet the Heating Requirements of all Types of Buildings

The Ideal Water Tube Boiler is the perfected product of many years of experience. To the solution of actual heating problems as they have presented themselves in buildings of all types and sizes, in all sections of the country, has been brought the service of our staff of heating engineers and the experimental equipment of the largest heating laboratory in the world—the Institute of Thermal Research. Today, the Ideal Water Tube Boiler embodies every desirable feature adapting it especially to the actual working conditions obtaining in its field of service.

The boiler is made in a complete range of sizes. No building is too large to secure its heating advantages.



# 36" IDEAL WATER TUBE BOILER

THE CONTACT FACES ON ALL DOORS AND PLATE WORK IN IDEAL WATER TUBE BOILERS ARE GROUND SMOOTH, MAKING A GAS-TIGHT CONSTRUCTION. THE HIGH STANDARD OF OPERATING ECONOMY AND CLEANLINESS IS PERMANENTLY MAINTAINED

# QUICKLY AND INEXPENSIVELY INSTALLED IN NEW OR OLD BUILDINGS

THE illustration at the bottom of the page shows how the Ideal Water Tube Boiler is made up of individual sections. These sections, even of the largest boiler, may be carried into the cellar through any average-sized doorway or elevator hatch. No tearing down of walls or ripping up of floors is necessary; nor does the boiler require, for erection, any special masonry in the way of pits or brick setting.



Sections of all boilers can be easily moved through the average doorway



Push nipple used to connect sections, latheturned to the thousandth part of an inch

The constructional advantage of the Ideal Water Tube Boiler in this respect, commends it especially to owners of old buildings as well as new. In both instances an installation cost of considerable magnitude is eliminated.

### Enlarged at Any Time to Meet New Heating Requirements

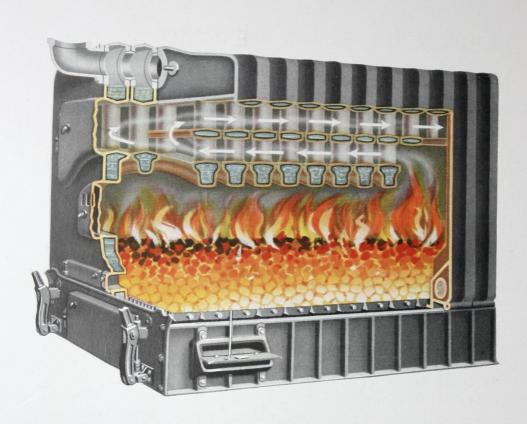
The sections of the boiler are connected by push nipples, lathe-turned to the thousandth part

of an inch, which fit snugly into the carefully machined holes at the top and base of the sections. These nipples are made of

the same carefully selected iron mixture that is used in the sections. Durability of service and permanently steam- and watertight connections are insured.

Should it be desired at any time to increase the size of the boiler to meet an enlarged heating requirement, new sections may be readily and inexpensively added at the rear; or if necessary, a battery of two or more boilers can be installed.





# FRONT-TO-REAR CROSS-SECTION VIEW OF THE 36" IDEAL WATER TUBE BOILER

THE REFINED BALANCE IN THE DESIGN OF THE GRATE AREA, FIRE CONTACT HEATING SURFACE, FLUE AREA AND GAS TRAVEL; THE MULTIPLICITY OF TUBULAR WATERWAYS WHICH DIVIDE THE WATER INTO MANY THIN STREAMS, AND THE UNUSUALLY LARGE HEAT-ABSORBING SURFACE, ACCOMPLISH QUICK, DEPENDABLE, AND EFFICIENT HEATING FOR ALL IDEAL WATER TUBE BOILERS

# QUICK HEATING RESPONSES AND DEPENDABLE, EFFICIENT SERVICE

IT IS highly important that a boiler intended for an apartment, hotel, store, industrial building, public building, etc., be capable of developing a large heat output within a very short space of time to meet rapidly fluctuating heating loads, and that it be able to perform in this respect and operate also throughout the normal part of the heating year, with a definite regard for economy in fuel consumption.

The rapidity with which a boiler generates steam or vapor, or produces hot water at its outlet, is a function of no one single feature of its design, but depends, rather, upon the relative proportions existing between all features, and the construction of the boiler. There are not twenty or thirty best designs; there is one—and it may be arrived at and recognized only through very careful experimentation and testing conducted by engineers of skill and practical experience.

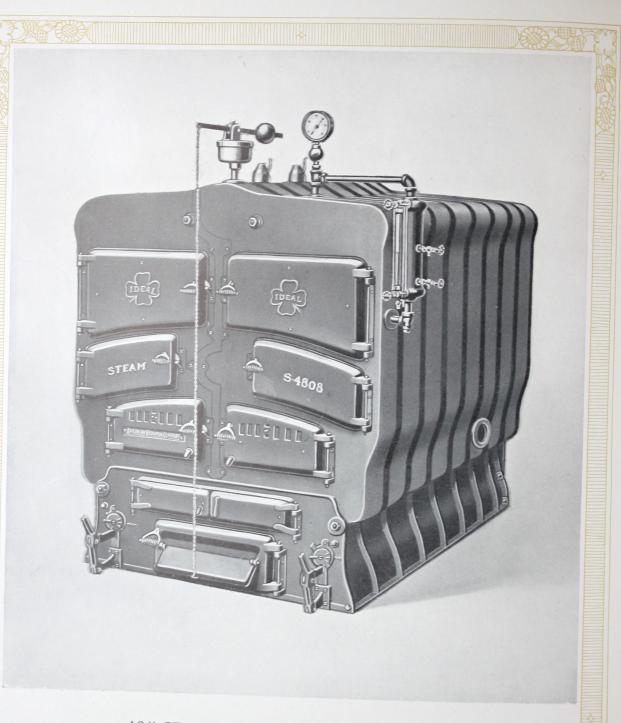
The Ideal Water Tube Boiler is a highly refined product of extensive tests carried out under the supervision of our engineers, supplemented by many years of service under varying conditions, in buildings of all kinds and sizes.

The boiler is well known for its unusual "pick-up," heat-generating capacity, and for its continued economy of fuel consumption with the minimum amount of attention.

### Unrestricted Internal Water Flow and Long Flue Travel

Outstanding among the features effecting the extraordinarily quick heating response and economical operation of the Ideal Water Tube Boiler, is its extensive array of water-backed vertical tubes, as shown in the illustrations. These tubes divide the

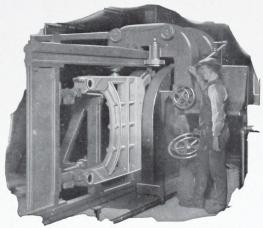




# 48" IDEAL WATER TUBE BOILER

THE 48" SIZE IDEAL WATER TUBE BOILER IS ONE OF THE OLDEST AND BEST KNOWN IN THE SERIES. ITS SPECIAL GAS TRAVEL IS DESCRIBED ON PAGE THIRTEEN. IN POINT OF OPERATING EFFICIENCY AND STURDY CONSTRUCTION, THE 48" BOILER IS THE SAME AS THE OTHER UNITS IN THE SERIES

body of water in the boiler into many thin streams, and intercept the horizontal flow of the hot gases in the upper and lower flue galleries. As the broad sheet of water surrounding the sides and top of the combustion chamber absorbs the radiant heat of the fire, it quickly rises through the vertical tubes, establishing a flow at right angles to the movement of the gases.



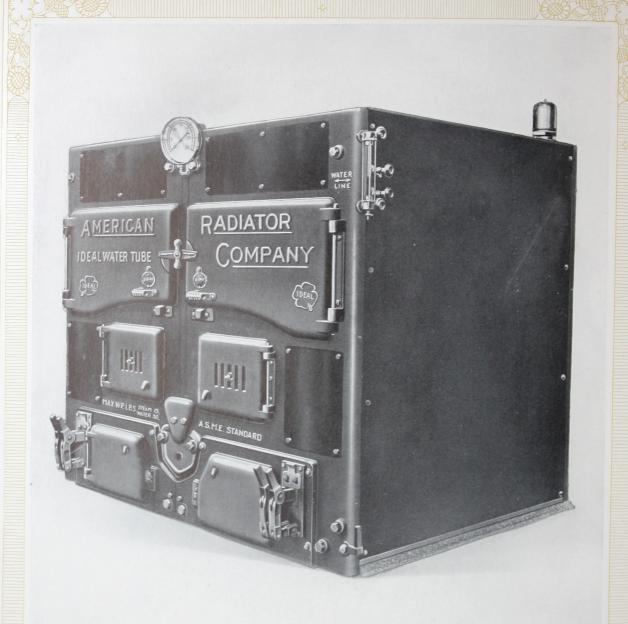
On special, immense machinery, contact faces on all sections are machine-ground to smoothness

The long travel of the hot gases, and the relation of their direction of flow to that of the water, effects a rapid heat transmission from the gases to the water. The waterways throughout are smooth, and the steam disengaging area is large. Quick heating, dry steam generation, and the utilization of the heating value of the fuel to the fullest possible extent, are the results.



illustrating the gas travel in the  $48^{\prime\prime}$  boiler

Rising out of the combustion chamber at the rear, the gases enter the two outside flues and travel forward to the front of the boiler where they turn and enter the three center flue passageways, proceeding to the rear where they pass to the smokehood. Relatively, the proportion of indirect heat-absorbing surface is the same as in the other sizes of Ideal Water Tube Boilers.



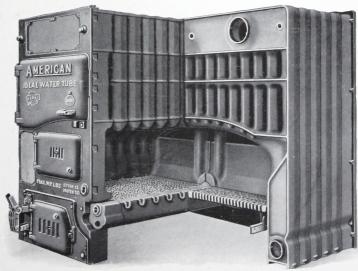
# 79" IDEAL WATER TUBE BOILER

MANY OF THE LARGEST BUILDINGS THROUGHOUT THE COUNTRY ARE HEATED BY THE 79" IDEAL WATER TUBE BOILER IN BATTERY. NO BUILDING IS TOO LARGE FOR ITS USE. THESE BOILERS ARE WATER-BACKED TO THE FLOOR AND HAVE A VERY LOW WATER LINE. THEY ARE COMPACT, CLEANCUT, EASILY ATTENDED, AND OPERATE WITH A MARKED ECONOMY OF FUEL CONSUMPTION

### Gas-Tight Iron-to-Iron Construction Insures Permanent Economy

The Ideal Water Tube Boiler incorporates one exclusive feature of construction that insures high operating efficiency during its lifetime—which is that of the building it serves.

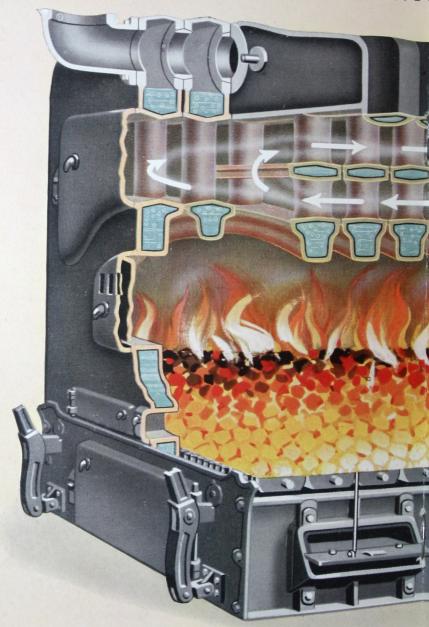
All contacting surfaces on the individual sections are machineground to smoothness on special grinding machines. The illustration shows the process. Held rigidly in great iron jaws, each section is worked back and forth through two huge carborundum wheels, until its contacting faces are ground straight and virtually as smooth as marble. When the sections are assembled, therefore, their iron-to-iron contact joints form a gas-tight construction. The hot gases rising out of the combustion chamber are forced to travel through the entire flue course: forward through the lower gallery to the front of the boiler, thence upward and backward through the upper gallery to the smokehood at the rear—a distance twice the length of the boiler. Because of the gas-tight construction, it is impossible for the gases to short-circuit to the smokehood from any point. The construction is permanent; and the utilization of the heating value of the fuel supplied to the boiler in the most efficient degree, is therefore also permanent.



THREE-QUARTER SECTIONAL VIEW OF 79" IDEAL WATER TUBE BOILER

This boiler is cast in half-section units with water-backed legs extending to the floor. Note also that the center grate support is water-backed throughout and cannot burn out. The grates are wide and are made of heavy cast iron. All contact faces on sections, doors and plate work are machined to smoothness. Each detail is carefully designed and constructed to insure efficient heating and durable service.

# SECTIONAL VIEW ILLUSTRATING INT OF THE IDEAL WA



The Ideal Water Tube Boiler has derived its name from the basic characteristic of its design—the extensive series of water-backed vertical tubes which divide the body of water into many thin streams, and expose an unusually large amount of heat-absorbing surface to the fire and the hot gases of combustion. This design, united with the other features of the boiler—

# TERNAL DESIGN AND CONSTRUCTION ATER TUBE BOILER



the scientifically balanced proportions of its grate area, direct heating surface, flue area, and gas travel; its gas-tight flue construction; its unusually heavy grates, doors, plate work, and hinge-pins; its large, substantial smokehood and automatic regulation—all unite in accomplishing quick, economical, and durable heating service with the very minimum amount of attention.

# Ideal Water Tube Boilers Are As Durable As The Buildings They Serve

IT IS a satisfaction to every owner to know that his boiler will serve efficiently, year after year, without break-down. Ideal Water Tube Boilers render this kind of service. They are made of a carefully prepared iron mixture, unaffected by rust, summer dampness. gases, heat, or water. These boilers practically never wear out.

Careful Workmanship

Our factories operate on one insistent policy; the quality of Ideal Boilers shall always come first. To this end every step in their manufacture is executed with the same degree of care and skill that characterizes each feature of design. From the raw material to the finished product, every department and operation is surrounded by a careful system of inspection.

### Iron Mixture

In order to insure a thoroughly homogeneous and uniform iron mixture in every boiler, daily chemical analyses are made of each lot of iron, coke and limestone, in accordance with which the relative quantities of these materials are determined before they are placed in the cupola. Then the iron mixture itself, after it has been run from the cupola, is analyzed and tested against our established standard, which is the result of many years of ex-



Chemical Laboratory for testing iron mixtures, maintained at the Institute of Thermal Research

perience in boiler making. Every precaution is taken that the casting used in each Ideal Boiler conforms to specifications.

### Thorough Testing

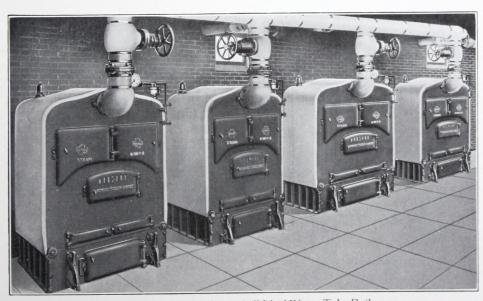
Each section of every boiler is subjected to an individual hydraulic test of 80 pounds. Representative boilers from every run are then completely assembled and subjected to an-

other 80-pound hydraulic test. Only when it is certain that the boilers are practically perfect in every respect are they passed for shipment.

# Most Easily Cared For No Special Skill Required

WNERS of buildings requiring the services of boilers of larger heating capacities are being confronted increasingly with the problem of securing skilled attendants for boiler operation. Boilers intended for larger buildings are, of course, called upon to function under the extra burden of widely and rapidly fluctuating heating loads, and their continued, successful and economical performance depends, in most instances, upon the services of skilled operators.

No especial degree of skill whatever is required to obtain permanently satisfactory results with the Ideal Water Tube Boiler. For this the refined balance between its respective features of design is responsible. The boiler presents no more complicated problem for handling than the usual smaller type of household heating plant. The human element is virtually removed as a controlling factor of good performance.



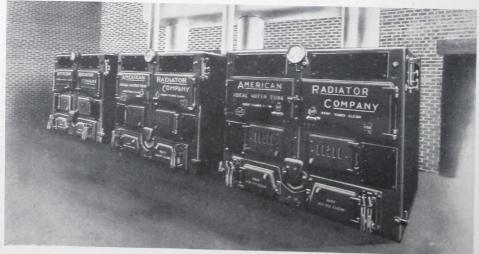
Typical battery installation 36" Ideal Water Tube Boilers

### Especially Well Adapted for Battery Installation

It is a fact rarely appreciated that a heating boiler is called upon to operate at 100% of its heat-producing capacity during a very small portion of the heating year. As a matter of fact, a boiler is obliged to function at only about 30% of its maximum heat-producing capacity during the major part of the season. And in apartments, hotels, stores, factories, churches, schools, etc., heating needs fluctuate widely during short intervals within the heating season.

For these reasons a battery of two or more Ideal Water Tube Boilers will prove more economical to use than a large single heating unit. With a battery of Ideal Boilers, only one boiler, or two, or more, according to the size of the building, need be employed during the major part of heating year. When the colder weather and extreme heating loads occur, the entire battery may be put into service. But by using only the minimum number of boilers required to meet normal requirements, as compared with the use of one large boiler, fired low, a very considerable saving both in fuel and labor is effected.

Far-sighted engineers have recognized this fact and are increasingly recommending the use of two or more Ideal Water Tube Boilers as against the use of one large single unit.



Typical battery installation 79" Ideal Water Tube Boilers

# THE ARCO AUTOMATIC HEAT REGULATOR



Sectional view Arco steam pressure regulator

ALL Ideal Water Tube Steam Boilers are regularly equipped with the Arco Automatic Heat Regulator—the most highly developed regulator of its kind manufactured.

This regulator is made entirely of metal and works without friction. It has no rubber diaphragm, packing or piston joint to wear out or get out of order. The Arco bellows with its accordion sides is made of the best flexible seamless steam brass.

As durable as the boiler itself, the Regulator may be relied upon always to respond instantly and with minute precison to changes in pressure within the boiler.

### Advantages of Automatic Regulation

The Regulator is set to maintain any desired pressure. After having been thus set, it assumes the entire burden of maintaining the required heat production at the boiler's outlet; and it performs this function more accurately and dependably than would be possible with continued personal attention.

Should the heat output exceed the desired point, the pressure within the boiler increases. The Arco bellows immediately contracts, and the movement is transferred, through the positive-operating levers, to the draft panel which begins to close. Decreasing the air supply thus checks the fire. Should, however, the heat output of the boiler drop below the desired point, the pressure within the boiler decreases and the reverse action takes place in the Regulator. Always, just the necessary amount of fuel is burned to keep the house comfortably warm. Thus the Arco Automatic Heat Regulator saves time, steps, and fuel.

The Ideal Water Tube Boiler designed for water installation is not regularly equipped with automatic regulation. A special Arco Automatic Heat Regulator for water is available, however, for a slight extra charge.

### ABOUT RADIATION

The American Radiator—World Standard of Merit

WHEREVER direct radiation is contemplated, particular attention is directed to American Radiators. They offer definite points of advantage.

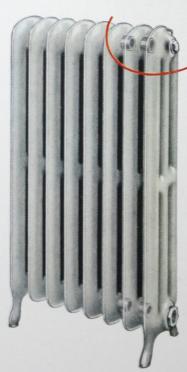
The sections of all American Radiators are joined on the inside by the special threaded nipple construction illustrated below. The nipples are made of malleable iron and are right-and left-hand threaded. On specially designed machinery the radiator sections are drawn together and joined by these nipples, in such a way as to insure automatically that each nipple is screwed an equal depth into, and has an equal grip on, each section.

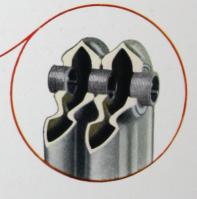
This construction unites the advantages of the two basic types of mechanical connection: the faced and the threaded joint. It is the tightest and safest that can be made.

It holds the sections together in true and permanent alignment. It allows new sections readily to be added at a later time, should an extension be desired, and it eliminates the need of the unsightly

iron rods and nuts used in the ordinary radiator construction.

It has been primarily on the basis of this superior, inbuilt value that American Radiators have climbed to world supremacy. It pays to insist on American Radiators.





THE SECRET OF A PERFECT RADIATOR

Threaded Nipple Construction

AN EXCLUSIVE FEATURE IN ALL AMERICAN RADIATORS

# AMERICAN PEERLESS WALL RADIATORS

Especially Designed for Industrial Buildings of all Kinds and Sizes



Section of an American Peerless Wall Radiator

NE of the first considerations in choosing radiation for any industrial plant is the desirability of combining adequate heating with space economy.

American Peerless Wall Radiators are made in sections in a wide range of sizes and with provisions for numerous groupings. They may, therefore, be assembled to meet any structural condition, fitting into restricted spaces under windows or between them, on ceilings, or in sky-lights.

And united to this advantage is the fact that these radiators possess such an unusually high operating efficiency, that

to heat any given volume of space they actually occupy from onethird to one-half the amount of space required by other types of direct radiation. As a result, larger windows are possible, better lighting effects, cleaner and more attractive working conditions, and a better organization of the machinery of production.

These radiators may be assembled in small units. Steam can be admitted into only a limited number of units during the milder periods of the heating year, thus securing comfortable temperatures at all times with the very least consumption of fuel.

It is frequently desired, in many types of industrial plants, to utilize exhaust steam for heating purposes. American Peerless Wall Radiators are perfectly adapted to meet this requirement.

Pitting of the inner or outer surfaces of these radiators is unknown. They are thoroughly impervious to rust. By their material, design, and construction, they are a guarantee of satisfactory heating service during the entire lifetime of the building they occupy.



# IDEAL WATER TUBE BOILERS FOR OIL BURNING

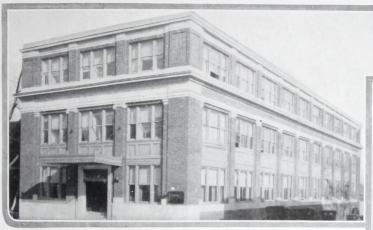
THE steadily increasing use of oil as a fuel for heating purposes has been accompanied by an insistent demand for a first class oil-burning boiler.

All boilers are not suited to the efficient burning of oil, and many boilers which are fairly well adapted to certain types of oil burners are not adapted to the use of others. These are facts which every prospective user of oil fuel should bear well in mind. A little care and study in the beginning will save much time and money in the end.

The Ideal Water Tube Oil Burning Boiler is probably the most popular all-round oil-burning boiler in America. Its reputation has been attained through its unique combination of features of design and construction, which adapt it excellently for oil burners of every type.

If you are particularly interested in securing the service of an oil-burning unit, write us and we shall be pleased to send you a copy of our special book entitled: "Ideal Boilers for Oil Burning," which goes fully into the subject.

# Typical Ideal Water Tube Boiler Installations



Greensboro Daily News Building, Greensboro, N. C., heated by two 48" Ideal Water Tube Boilers





Boreal Club, Buffalo, N. Y., heated by one 29" Ideal Water Tube Boiler



Van Allen Motor Service, Buffalo, N. Y., heated by one 29" Ideal Water Tube Boiler



The Barnes Foundation, Merion, Pa., heated by two 79" Ideal Water Tube Boilers





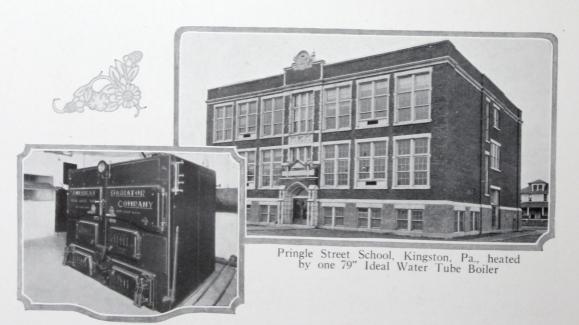
Elmwood Music Hall, Buffalo, N. Y., heated by one 65" Ideal Water Tube Boiler

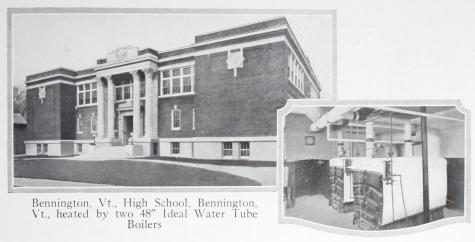


Holy Trinity Lutheran Church, Buffalo, N. Y., heated by a battery of 36" Ideal Water Tube Boilers



Famous Players-Paramount Film Corp., New York City, heated by two 36" Ideal Water Tube Boilers









Trust Company of New Jersey, Jersey City, N. J., heated by two 79" Ideal Water Tube Boilers



Hellman Commercial Trust & Savings Bank, Los Angeles, Calif., heated by two 79" Ideal Water Tube Boilers

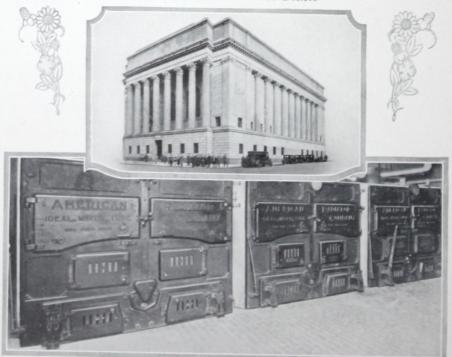


Chatham Court Apartments, Philadelphia, Pa.

Heated by two 79" Ideal Water Tube Boilers



Littel Building, Buffalo, N. Y., heated by a battery of two 48" Ideal Water Tube Boilers



Greenwich Savings Bank, New York City, heated by a battery of three 79" Ideal Water Tube Boilers

# Ideal Water Tube Boiler Ratings and Data

### 23-INCH SERIES

STE Number of Boiler	AM Rating Steam Sq. Ft.	WA' Number of Boiler	TER Rating Water Sq. Ft.	Grate Area Sq. Ft.	Fuel capacity Lbs.	Total Length "L" Ins.	Outlets Number and Size	Number	Size	Chimney Height Feet
S-2305 S-2306 S-2307 S-2308 S-2309	600 750 900 1,050 1,200	W-2305 W-2306 W-2307 W-2308 W-2309	975 1,200 1,425 1,650 1,875	2.72 3.36 4.00 4.64 5.28	164 203 242 281 320	21 25 29 33 37	1-4 1-4 1-4 1-4 1-4	2-3 2-3 2-3 2-3 2-3 2-3	8x12 8x12 8x12 12x12 12x12	30 35 35 35 35

#### 29-INCH SERIES

STE	AM	WA?	ΓER		Fuel	Total	Steam	Water	Steam	Water		
Number	Rating	Number	Rating Water			Length	Outlets	Outlets	Inlets	Inlets	Chimney	Chimney
Boiler	Sq. Ft.	Boiler	Sq. Ft.	Area Sq. Ft.	Lbs.	Ins.	Size	No. and Size	Size	No. and Size	Size Ins.	Height Ft.
S-2905	1,600	W-2905	2,600	4.84	347	30	1-5	1-5	2-4	2-5	12x16	35
S-2906 S-2907	2,000	W-2906 W-2907	3,250	6.05	435	36 42	1-5	1-5 2-5	2-4	2-5 2-5	12x16 16x16	40 40
S-2908 S-2909	2,800 3,200	W-2908 W-2909	4,550 5,200	8.47	611	48 54	1-5	2-5	2-4	2-5 2-5	16x16	45
S-2910	3,600	W-2910	5,850	10.89	787	60	2-5	2-5	2-4 2-4	2-5	16x20 16x20	50 55
S-2911	4,000	W-2911	6,500	12.10	875	66	2-5	2-5	2-4	2-5	20x20	60

#### 36-INCH SERIES

STE Number of Boiler	AM Rating Steam Sq. Ft.	WA7 Number of Boiler	ΓER Rating Water Sq. Ft.	Grate Area Sq. Ft.	Fuel Capacity Lbs.	Total Length "L" Ins.	S. & W. Outlets No. and Size	Steam Inlets No. and Size	Water Inlets No. and Size		Chimney Height Ft.
S-3605 S-3606 S-3607 S-3608 S-3609 S-3610 S-3611 S-3612 S-3613 S-3614 S-3615	2,500 3,150 3,800 4,450 5,100 5,750 6,400 7,050 7,700 8,350 9,000	W-3605 W-3606 W-3607 W-3608 W-3609 W-3610 W-3611 W-3612 W-3613 W-3614 W-3615	4,000 5,100 6,200 7,300 8,400 9,500 10,600 11,700 12,800 13,900 15,000	6.00 7.50 9.00 10.50 12.00 13.50 15.00 16.50 18.00 19.50 21.00	540 684 828 972 1,116 1,260 1,404 1,548 1,692 1,836 1,980	30 36 42 48 54 60 66 72 78 84 90	1-6 1-6 2-6 2-6 2-6 2-6 2-6 2-6 2-6 2-6 2-6	2-4 2-4 2-4 2-4 2-4 2-4 2-4 2-4 2-4 2-4	2-4 2-4 * * * † † †	16x16 16x20 16x20 20x20 20x20 20x20 20x20 20x20 20x24 20x24 20x24 24x24	45 45 50 50 55 55 60 60 65 70 75

<sup>\*</sup>Two  $3\frac{1}{2}$ -in. and two 4-in. †Four  $3\frac{1}{2}$ -in. and two 4-in.

#### 48-INCH SERIES

STE Number of Boiler	Rating Steam Sq. Ft.	WA' Number of Boiler	ΓER Rating Water Sq. Ft.	Grate Area Sq. Ft.	Fuel Capacity Lbs.	Total Length "L" Ins.	S. & W. Outlets No. and Size	Steam Inlets No. and Size	Water Inlets No. and Size	Chimney Size Ins.	Chimney Height Ft.
S-4806 S-4807 S-4808 S-4809 S-4810 S-4811 S-4812 S-4813 S-4814	7,750 9,000 10,250 11,500 12,750 14,000 15,250 16,500 17,750	W-4806 W-4807 W-4808 W-4809 W-4810 W-4811 W-4812 W-4813 W-4814	12,500 14,500 16,500 18,500 20,500 22,500 24,500 26,500 28,500	18.00 21.60 25.20 25.20 28.80 28.80 28.80 32.40 32.40	1,475 1,770 2,065 2,065 2,360 2,360 2,360 2,655 2,655	573/4 681/2 791/4 90 1003/4 1111/2 1221/4 133 1433/4	2-6 3-6 3-6 3-6 3-6 4-6 4-6 4-6	4-4 4-4 4-4 4-4 4-4 4-4 4-4 4-4	4-6 4-6 4-6 4-6 4-6 4-6 4-6 4-6	24x24 24x24 24x24 24x28 24x28 28x28 28x28 28x32 28x32	65 70 75 80 85 95 100 105

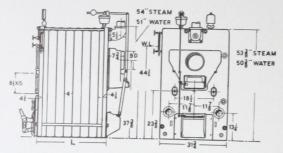
#### 79-INCH SERIES

STE Number of Boiler	AM Rating Steam Sq. Ft.	WA Number of Boiler	FER Rating Water Sq. Ft.	Grate Area Sq. Ft.	Total Length "L" Ins.	S. & W. Outlets Number and Size	Steam Inlets Number and Size	Water Inlets Number and Size	Chimney Size Ins.	Chimney Height Ft.
S-7907 S-7908 S-7909 S-7910 S-7911 S-7912 S-7913 S-7914 S-7915 S-7916 S-7917	8,400 9,600 10,800 12,000 13,200 14,400 15,600 16,800 18,000 19,200 20,400	W-7907 W-7908 W-7909 W-7910 W-7911 W-7912 W-7913 W-7914 W-7915 W-7916 W-7917	13,440 15,360 17,280 19,200 21,120 23,040 24,960 26,880 28,800 30,720 32,640	22.96 26.24 29.52 32.80 36.08 39.36 42.64 45.92 41.00 44.28	48 54 60 66 72 78 84 90 96 102	1-10 1-10 1-10 1-10 1-10 1-10 1-10 1-10	1-4 1-4 1-4 1-4 1-4 1-4 1-4 1-4 1-4 1-4	2-10 2-10 2-10 2-10 2-10 2-10 2-10 2-10	20x24 20x24 24x24 24x24 24x28 24x28 24x28 24x28 28x28 28x28 30x30 30x30	60 65 70 75 80 85 90 95 100 105

Safety Valve sizes accord with A. S. M. E. boiler code.

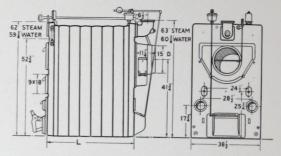
# IDEAL WATER TUBE BOILER DIMENSIONS

#### 23-INCH SERIES



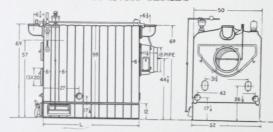
For dimension "L" see page 29

#### 29-INCH SERIES



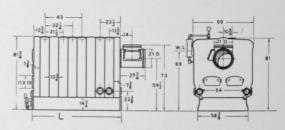
For dimension "L" see page 29

#### 36-INCH SERIES



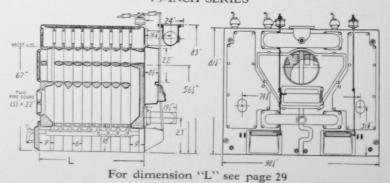
For dimension "L" see page 29

#### **48-INCH SERIES**

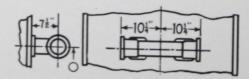


For dimension "L" see page 29

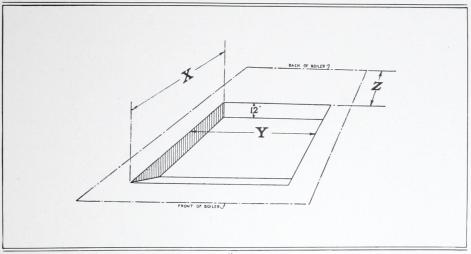
### 79-INCH SERIES



### RETURN HEADER FOR WATER BOILERS



# IDEAL WATER TUBE BOILER ASH PIT DIMENSIONS



Number of	Dim	ensions	in Inch	nes	Number of	Dim	ensions	in Inch	ies
Boiler	Depth	X	Y	Z	Boiler	Depth	X	Y	Z
S or W-2305	. 12	16	18	3	S or W-4806	12	52	50	2 2 2
S or W-2306	12	20	18	3	S or W-4807	12	63	50	2
S or W-2307	12	24	18	3	S or W-4808	12	73	50	
S or W-2308	12	28	18	3	S or W-4809	12	73	50	14
S or W-2309	12	32	18	3	S or W-4810	12	83	50	14
					S or W-4811	12	83	50	24
S or W-2905	12	24	23	3	S or W-4812	12	83	50	35
S or W-2906	12	30	23	3	S or W-4813	12	94	50	35
S or W-2907	12	36	23	3	S or W-4814	12	94	50	46
S or W-2908	12	42	23	3	0 W. 5005	12	31	74	0
S or W-2909	. 12	48	23	3	S or W-7907			74	8 8
S or W-2910	12	54	23	3	S or W-7908	12	37 43	74	8
S or W-2911	12	60	23	3	S or W-7909 S or W-7910	12	49	74	8
		2.4	12	2		12	55	74	8
S or W-3605	12	24	42	3	S or W-7911 S or W-7912	12	61	74	8
S or W-3606	12	30	42	3	S or W-7912	12	67	74	8
S or W-3607	12	36	42	2	S or W=7913	12	73	74	8
S or W-3608	12	42 48	42 42	2	S or W=7915	12	67	74	20
S or W-3609	12 12	54	42	2	S or W=7919	12	73	74	20
S or W-3610	12	60	42	2	S or W-7917	12	73	74	26
S or W-3611	12	66	42	3	3 01 W-7917	12	,,	, ,	20
S or W-3612	12	72	42	3					
S or W-3613	12	78	42	3					
S or W-3614 S or W-3615	12	84	42	3					

# Arrangement of Sections 79-Inch Boiler

Boiler Number	Arrangement 18–19 and 20 section based on actual grate length not over 72"	Actual Grate Length	Length of Fire Box	Grate Area Based on Fire Box Length
S or W-7907	A-5C-H A-6C-H A-7C-H A-8C-H A-9C-H A-10C-H A-11C-H A-12C-H A-12C-BW-G-H A-12C-BW-G-H A-12C-BW-G-H	30	42	22, 96
S or W-7908		36	48	26, 24
S or W-7909		42	54	29, 52
S or W-7910		48	60	32, 80
S or W-7911		54	66	36, 08
S or W-7912		60	72	39, 36
S or W-7913		66	78	42, 64
S or W-7915		72	84	45, 92
S or W-7916		66	75	41, 00
S or W-7916		72	81	44, 28

For Arrangement of Sections of 23-inch, 29-inch, 36-inch and 48-inch Boilers, see Ideal Fitter Catalogue pp. 29-30.

# IDEAL WATER TUBE BOILER CHIMNEY SIZES FOR BOILERS IN BATTERY

#### 29-INCH SERIES

	TV	VO BOILE	ERS	THR	EE BOIL	ERS	FOUR BOILERS			
Number of Boiler	Rating Steam	Size Inches	Height Feet	Rating Steam	Size Inches	Height Feet	Rating Steam	Size Inches	Height Feet	
S or W-2905 S or W-2906 S or W-2907 S or W-2908 S or W-2909 S or W-2910 S or W-2911	3 200 4,000 4,800 5,600 6,400 7,200 8,000	16x16 16x16 16x20 16x20 20x20 20x20 20x20 20x24	40 45 45 50 55 60 65	4,800 6,000 7,200 8,400 9,600 10,800 12,000	16x20 16x20 20x20 20x20 20x24 20x24 20x24 24x24	45 45 50 55 60 60 65	6,400 8,000 9,600 11,200 12,800 14,400 16,000	20x20 20x20 20x24 20x24 24x24 24x24 24x24 24x28	50 50 55 55 55 60 60 65	

#### **36-INCH SERIES**

	TWO	BOIL	ERS	THRE	EE BOII	LERS	FOU	R BOIL	ERS	FIVE	E BOILI	ERS
Number of Boiler	Rating Steam	Size Ins.	Height Feet	Rating Steam	Size Ins.	Height Feet	Rating Steam	Size Ins.	Height Feet	Rati ng Steam	Size Ins.	Height Feet
S or W-3605	5,000	16x20	50	7,500	20x20	55	10,000	20x24	60	12,500	24×24	65
S or W-3606	6,300	20x20	50	9,450	20x24	55	12,600	24x24	60	15,750	24x28	65
S or W-3607	7,600	20x20	55	11,400	20x24	60	15,200	24x24	65	19,000	24x28	70
S or W-3608	8,900	20x24	55	13,350	24x24	60	17,800	24x24	65	22,250	28x32	70
S or W-3609	10,200	20x24	60	15,300	24x24	65	20,400	24x24	70	25,500	28x32	75
S or W-3610	11,500	24×24	60	17,250	24x28	65	23,000	28x28	70	28,750	28x32	75
S or W-3611	12,800	24x24	65	19,200	24x28	70	25,600	28x28	75	32,000	28x32	80
S or W-3612	14,100	24x28	70	21,150	28x28	75	28,200	30x36	80	35,250	30x36	85
S or W-3613	15,400	24x28	75	23,100	28x28	80	30,800	30x36	85	38,500	30x36	90
S or W-3614	16,700	24x28	75	25.050	28x28	80	33,400	30x36	85	41.750	30x36	90
S or W-3615	18,000	28x28	80	27,000	30x36	85	36,000	30x36	90	45,000	36x36	95

#### **48-INCH SERIES**

	TWC	BOIL	ERS	THRE	EE BO	ILERS	FOU	R BOI	LERS	FIVE	E BOIL	LERS	SIX	BOIL	ERS
Number of Boiler	Rating Steam		Height Feet	Rating Steam		Height Feet	Rating Steam		Height Feet	Rating Steam		Height Feet	Rating Steam	Size Ins.	Height Feet
S or W-4806 S or W-4807 S or W-4808 S or W-4809 S or W-4810 S or W-4811 S or W-4811 S or W-4813 S or W-4813	18,000 20,500 23,000 25,500 28,000		65 70 75 80 85 95 100 105 110	23,250 27,000 30,750 34,500 38,250 42,000 45,750 49,500 53,250	30x36 36x36 36x42 36x42 42x42 42x42 42x48	75 80 85 85 90 95 105 110	31,000 36,000 41,000 46,000 51,000 56,000 61,000 66,000 71,000	36x42 42x42 42x42 42x48 42x48 48x48 48x48	85 90 90 95 100 105 110	38,750 45,000 51,250 57,500 63,750 70,000 76,250 82,500 88,750	42x42 42x42 42x48 42x48 48x48 48x54 48x54	90 95 95 100 105 110	46,500 54,000 61,500 69,000 76,500 84,000 91,500 99,000 106,500	42x42 42x48 48x48 48x54 54x54 54x54 54x60	100

#### 79-INCH SERIES

Number	TWO	) BOIL	ERS	THRE	E BOI	LERS	FOUR	BOIL	ERS	FIVE	BOIL	ERS	SIX	BOILE	RS
of Boiler	Rating Steam	Size Ins.	Height Feet	Rating Steam	Size Ins.	Height Feet	Rating Steam	Size Ins.	Height Feet	Rating Steam	Size Ins.	Height Feet	Rating Steam	Size Ins.	Height Feet
S or W 7907 7908 7909 7910 7911 7912 7913 7914 7915 7916	16,800 19,200 21,600 24,000 26,400 28,800 31,200 33,600 36,000 38,400 40,800	28x28 28x28 28x32 28x32 30x36 30x36 30x36 36x36 36x36 36x42 36x42	65 70 75 80 85 90 95 100 105 110	25,200 28,800 32,400 36,000 39,600 43,200 46,800 50,400 54,000 57,600 61,200	30x36 30x36 36x36 36x36 36x42 36x42 42x42 42x42 42x48 42x48	70 75 80 85 90 95 100 105 110 115 120	43,200 48,000 52,800 57,600 62,400 67,200 72,000 76,800 81,600	36x42 36x42 42x42 42x42 42x42 42x48 42x48 48x48 48x48	85 90 95 100 105 110 115 120 125	72,000 78,000 84,000 90,000 96,000 102,000	42x48 42x48 48x48 48x48 48x54 48x54	110 115 120 125	100,800 108,000 115,200 122,400	48x54 48x54 54x54 54x54	120 125 130 135

#### DATA

23- and 29-Inch Boilers are regularly supplied without Jacket but will be furnished with Ideal Asbestos-lined Metal Jacket on special order.

36- and 48-Inch Boilers are supplied without Jacket.

#### BOILER EQUIPMENT

Steam Boilers—Steam Gauge. Pop-Safety Valve. Water Column and Trimmings. Firing Tools. Arco Automatic Damper Regulator.

Water Boilers—Ideal Damper Control. Firing Tools



## Institute of Thermal Research

THIS largest of all heating laboratories in the world is dedicated to the study of the science of heat and the practical application of the principles developed, to the end that Ideal Boilers may be worthy of their name,



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